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EXAMINER

CUNNINGHAM, TERRY D

ART UNIT PAPER NUMBER

2816

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Please find below and/or attached an Office communication concerning this application or proceeding.



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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Paper No. 24

Application Number: 09/887,834  
Filing Date: June 22, 2001  
Appellant(s): JAIN ET AL.

\_\_\_\_\_  
Michael J. Halbert  
For Appellant

**EXAMINER'S ANSWER**

**MAILED**  
**JAN 27 2004**  
**GROUP 2800**

This is in response to the appeal brief filed 24 October 2003.

Art Unit: 2816

**(1) *Real Party in Interest***

A statement identifying the real party in interest is contained in the brief.

**(2) *Related Appeals and Interferences***

A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

**(3) *Status of Claims***

The statement of the status of the claims contained in the brief is correct.

However, Examiner has found Appellant's remarks for claims 7, 8, 18, 24 and 25 to be persuasive. Therefore, the status of the claims are now as follows:

This appeal involves claims 1-3, 5, 6, 9-17 and 21-23.

Claims 4, 19 and 20 are allowed.

Claims 7, 8, 18, 24 and 25 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

**(4) *Status of Amendments After Final***

The appellant's statement of the status of amendments after final rejection contained in the brief is incorrect.

An amendment, making changes only to the specification and drawings, filed 29 July 2003 was entered as overcoming the objection to the drawings.

**(5) *Summary of Invention***

The summary of invention contained in the brief is correct.

Art Unit: 2816

**(6) Issues**

The appellant's statement of the issues in the brief is correct.

However, in view of the newly deemed allowable subject matter, discussed above, the issues should read as follows:

Whether claims 1-3, 5, 6, 9-17 and 21-23 are unpatentable as 35 U.S.C. § 102(b) as being anticipated by Chan (5,243,226)

**(7) Grouping of Claims**

Appellant's brief includes a statement that claims 1, 3, 5-18 and 24-25 and claims 2, 11, 21 and 23 do not stand or fall together and provides reasons as set forth in 37 CFR 1.192(c)(7) and (c)(8).

**(8) Claims Appealed**

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(9) Prior Art of Record**

5,243,226

Chan

9-1993

**(10) Grounds of Rejection**

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3, 5, 6, 9-17 and 21-23 are rejected under 35 U.S.C. §102(b) as being anticipated by Chan (cited by Applicant). Chan discloses, in Figs 2-4, a method of programming

Art Unit: 2816

an antifuse having the steps of “passing a current limited pulse (pulse 210.1 with current I1 of Fig. 2)”; and “passing a second pulse (pulse 210.2 with current I2 of Fig. 2)”, providing the operation as recited by Applicant. Reference is made to Cols. 3-4 of Chan which discusses the relative levels I1 and I2 of the current pulses 210.1 and 210.2, respectively (of Fig. 2). This section discusses a preferred embodiment wherein I2 is less than I1, for more consistency. However, it is additionally clear from the disclosure of Chan, particularly Cols. 3-4, that the disclosed circuit is not limited to I2 being less than I1. It is further clear that one skilled in the art will get similar results wherein I2 is greater than I1, however, the reduction of resistance (i.e., the programming of the antifuse) of the will not be as consistent.

**(11) *Response to Argument***

In the second full paragraph of page 4 of the Brief, Appellant remarks as follows:

Appellant respectfully disagrees and submits that contrary to the Examiner's statement, Chan is not “clear” regarding these points. Nowhere in Chan is there a discussion of using a first current I1 that is less than the second current I2 to program an antifuse. The express teachings of Chan, in fact, focus on using a second current I2 that is less than the first current I1.

Examiner agrees that the “focus” of the invention to Chan is in using a second current I2 that is less than the first current I1, in that this is the preferred embodiment due to the obtained benefits. However, Appellant's remarks concerning the clarity of the reference to Chan are not understood. As provided in the record, Col. 2, lines 65-66, of Chan states “Current I2 reduces the antifuse resistance even if |I2| (the magnitude of I2) is not higher than I1”. While this statement is provided in a negative sense, it is more that clear that this establishes the fact that the resistance of the antifuse is lowered (i.e., some programming occurs) whether the magnitude of I2 is higher or lower the I1. Examiner finds nothing wrong with the clarity of this statement.

Art Unit: 2816

Further, Col. 4, lines 8-10, of Chan states “The second pulse 210.2 reduces the antifuse resistance more consistently if current I2 is lower in magnitude than current I1”. Again, while this statement is provided in a negative sense, it is more than clear that this establishes the fact the “second pulse 210.2” will reduce the antifuse resistance if I2 is lower or higher in magnitude than I1. The distinction in this statement is that the reduction of resistance (i.e., programming of the antifuse) will be more consistent if “I2 is lower in magnitude than I1”. Again, Examiner finds nothing wrong with the clarity of this statement.

In view of these two passages in the references to Chan, Examiner contends that the reference expressly discloses that the antifuse can be programmed with a first current I1 followed by a second current I2, wherein I2 can be higher or lower than I1. The reference to Chan further teaches that the programming will be more consistent if “I2 is lower in magnitude than I1”.

In the second full paragraph of page 4 of the Brief, Appellant further remarks as follows:

Appellant respectfully submits that the Examiner’s statement that the provision of I2 being less than I1 is “merely an example” is misleading. The provision of I2 being less than I1 is discussed through Chan and is not “merely an example”: it is the only example.

The statement that this being “merely an example” may have been an understatement on Examiner’s part. It clearly would be more appropriate to state the provision of I2 being less than I1 is Chan’s preferred embodiment. However, Appellant’s statement that this provision “is the only example” is clearly incorrect upon reading the reference to Chan. Nowhere is the reference to Chan seen to require that I2 must be less than I1. As discussed above, the reference to Chan clearly provides for programming the antifuse wherein I2 is greater than I1, however, this embodiment will provide less consistency.

In the paragraph linking pages 4-5 of the Brief, Examiner basically agrees with the discussion therein. However, Examiner contends that one skilled in the art would view the disclosure discussed by Appellant as establishing that the provision of I2 being lower than I1 is the preferred embodiment. Examiner further contends that one skilled in the art would not conclude that Chan is teaching that I2 is required to be less than I1 or that the programming method will not work otherwise.

In the third full paragraph of page 5 of the Brief, Appellant states that "It is black letter law the '[a] claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference'", cited the corresponding case law. From this Appellant concludes that "Chan does not expressly describe each and every element set fourth in the claims".

It would appear that Appellant is misinterpreting this case law. The meaning of this case is well understood, particular in light of the law itself. The requirement of 35 U.S.C. § 102 is that one skilled in the art would "anticipate" the invention. If what a reference is teaching, as clearly understood by one skilled in the art, directly corresponds to the claim language, the requirement is met. It appears that Appellant is equating the term "expressly" in the case law to mean explicitly. The plain meaning of the term "expressly" would be "clearly stated". Examiner contends that providing a pulse of current I2 following a pulse of current I1 of greater value is expressly taught, albeit in a negative sense, in the reference the Chan.

In the last paragraph of page 5 of the Brief, Appellant discusses a case law relating to 35 U.S.C. § 112, sixth paragraph. It is not at all understood what the relevance of this discussion is. The rejection is being made under 35 U.S.C. § 102, not 35 U.S.C. § 112, sixth paragraph. There

Art Unit: 2816

is no discussion in the record that the claims are intended to be means-plus-function recitation nor would such appear to be the case. Appellant's discussion of "extrinsic evidence" seems misplaced. Examiner is relying on what is clearly taught in the reference to Chan. Further, in quoting the phrase "[i]nherency, however, many not be established by probabilities or possibilities" of the case law, Appellant states that "The mere fact that a certain thing may result from a given set of circumstances is not sufficient". Again, this discussion would appear to be misplaced. There is no question of what might happen given the discussed set of circumstances in the reference to Chan. The reference to Chan does not discuss what "may result", it states what will result. Chan expressly states that the antifuse will program when I2 is greater than I1, but with less consistency. This is not conjecture of probability, this is what is stated in the reference.

In the second paragraph page 6 of the Brief, Appellant makes the conclusion that the reference to Chan is comparing to a single situation wherein I1 and I2 have the "same magnitude currents". However, Appellant has not pointed to anywhere in the reference that states this. Thus, it is not seen how such a conclusion can be made without conjecture. Examiner contends that it is a fact that the contrary of I2 being lower than I1 is when I2 is not lower than I1 (see Col. 2, line 65, of Chan). This would necessarily include the situations wherein I2 and I1 are equal and wherein I2 is greater than I1. Also, the reference is clearly geared toward (while not limited to) providing different magnitude current pulses for programming, not same magnitude.

In response to the third paragraph of page 6 of the Brief, Examiner states that the discussion provided by Appellant are the reasons why the provision of I2 being lower than I1 are



Art Unit: 2816

the preferred embodiment in the reference to Chan. Such, nonetheless, still does make this provision a requirement.

In response to the remarks in the last paragraph of page 6 of the Brief, it is not understood how “one of ordinary skill in the art” would be abandoning “the express disclosure of Chan” when nowhere has the reference to Chan made it a requirement that I2 is less than I1. Clearly, one skilled in the art would not be abandoning the express disclosure of the reference. If one skilled in the art were to program the antifuse with a current I2 having a current magnitude greater than I2, it would be clear from the reference to Chan that such would still provide programming, albeit less consistent. Also, with respect to Appellant’s discussion of the magnitude of I2 and I1 being equal, again nowhere has Appellant pointed to any specific disclosure in the reference. For the reasons discussed above, this would be an improper interpretation of Chan.

On pages 7-8 of the Brief, Appellant discusses the claim language concerning the magnitude of the programming voltages being equal. However, Appellant is discussing a further embodiment of the invention. Reference is made to TABLE 1 and TABLE 2 of Col. 4 of Chan. Contrary to Appellant’s remarks, it is clear in the embodiment provided in Tables 1 and 2 that all of the programming voltages are 13V.

For the above reasons, it is believed that the rejections should be sustained.

Application/Control Number: 09/887,834

Page 9


Art Unit: 2816


Respectfully submitted,

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Primary Examiner  
Art Unit 2816

January 21, 2004

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